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AUTHOR	Biglan, Anthony; Duncan, Terry; Irvine, A. Blair; Ary, Dennis; Smolkowski, Keith; James, Lisa
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ABSTRACT

This paper describes strategies for developing drug abuse prevention programs in rural communities, based on available evidence about factors contributing to drug abuse. Comprehensive interventions to prevent drug abuse and other youth problems are needed because drug abuse is entwined with other problem behaviors and stems from a complex set of social context factors. Community interventions must supplement the prevention efforts of schools and families. The most proximal influence on adolescent substance abuse appears to be association with substance-using peers. Parenting practices also influence adolescent drug use, most notably parental monitoring and limit setting. A longitudinal study in six small Oregon towns confirmed the importance of peer and family relations and led to development of a model of these influences on adolescent problem behaviors. An obvious implication is that communities could reduce substance abuse through parent training in effective parenting practices. Three successful programs are described. Schools can influence drug abuse by providing specifically designed prevention programs; preventing academic failure, which is associated with substance abuse; and identifying high-risk students. Other community strategies include youth programs that act in loco parentis; social, material, and informational support for families; school reform efforts; and organizing for improved childrearing practices. The potential of the media in prevention efforts is also discussed. (Contains 112 references.) (SV)

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A Drug Abuse Prevention Strategy for Rural America

Anthony Biglan, Terry Duncan, A. Blair Irvine, Dennis Ary, Keith Smolkowski, and Lisa James

THE PAUCITY OF INFORMATION ABOUT DRUG ABUSE PREVENTION IN RURAL COMMUNITIES

Drug use is a significant problem in many parts of rural America (Donnermeyer 1992; Peters et al. 1992; Robertson 1994). In a review of the literature, Donnermeyer (1992) concluded that the level of alcohol use is the same in rural and urban areas and that the level of marijuana use in rural areas is approaching that for urban areas. The use of inhalants and stimulants is higher in rural areas than in urban areas, but the use of other hard drugs such as cocaine is lower in rural areas. Little is known about whether the factors that contribute to drug abuse in rural communities are the same as those in urban areas and whether prevention strategies that seem to make a difference in urban areas (e.g., Hansen 1992) will work in rural areas.

Given these gaps in knowledge, one strategy might be to commission longitudinal studies of predictors of substance use in rural areas and develop and test prevention programs only when the results of these predictive studies are available. It may be more efficient, however, to develop and test prevention strategies for rural areas based on what is currently known. Moreover, experimental evaluations of prevention programs should be organized to embed research on predictors of adolescent substance use and other problem behaviors within the research design. This strategy could save time and avoid the loss of several cohorts of youth to drug abuse that could occur if researchers waited for the results of longitudinal studies. Further, the strategy could provide better tests of theories about factors that contribute to drug abuse because studies would determine whether the modification of presumed risk factors contributes to prevention. For example, if parental monitoring and limit-setting influence adolescent drug use in rural settings as they do in urban areas, interventions to affect these parenting practices could be coupled with an examination of whether the changes are associated with a lower probability that children will start to use drugs.

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This chapter describes a strategy for developing and evaluating drug abuse prevention programs in rural communities that is based on the large body of evidence currently available about the factors that contribute to drug abuse. While the bulk of the evidence comes from urban settings, it is the appropriate starting place for research on prevention in rural settings.

TOWARD A CONTEXTUAL DEFINITION OF "RURAL"

Variability in drug abuse rates in rural areas has been noted (Donnermeyer 1992; Peters et al. 1992). Accounting for this variability would be valuable for understanding what influences drug abuse and what might be done to prevent it. When "rural" is defined simply in contrast to "urban," the diversity of rural areas is obscured. Although some investigators have distinguished among rural areas in terms of their size (e.g., small towns versus open country), topographic and structural characteristics are unlikely to be functionally related to the prevalence of drug abuse. For research purposes, characteristics of rural areas that are significantly related to patterns of drug abuse need to be discovered.

A promising candidate is the means of production. Harris (1979) has written extensively about the ways in which the productive activities of human groups influence their cultural practices. For diverse societies—from prehistory to modern America—Harris has shown that what people do to make a living influences how they live together and what they believe. For example, changes in the structure of the American family can be traced to the transition from a farm economy to an urban industrialized economy (Harris 1981, 1989).

Perhaps patterns of drug abuse in rural areas are influenced by the dominant production activities in those areas. What activities might support or encourage substance use? The most obvious is the production of drugs themselves. Is the rate of marijuana use higher in rural areas where marijuana is grown? Is the rate of stimulant use in rural areas related to the abundance of methamphetamine labs located in rural areas? What about the effects of tobacco production on use by youths? Young people might be more inclined to take up substance use if they live in an area where some adults derive their income from drug production and others derive some of their income from the success of the drug producers. Analyses on questions such as these are worth pursuing. Donnermeyer's (1992) review concluded that farm youth had lower rates of alcohol and marijuana use than did rural nonfarm youth. If rural areas involved in the

production of drugs also have a high prevalence of youth drug abuse, it would point to areas for concentrating prevention resources.

Risky occupations may also encourage licit and illicit substance abuse. For example, miners and loggers have a high risk of injury. A macho culture that ridicules worry about the consequences of risk-taking may provide psychological comfort to those who are forced to take such risks. Such a culture may minimize talk about the deleterious consequences of substance use. If legitimate productive activities such as mining and logging in fact encourage drug use, this has important implications for how to intervene to prevent drug abuse.

Finally, unemployment and underemployment may also be worth examining. The lack of productive activities means that people are more susceptible to drug use because they lack basic reinforcers (McDowell 1982). The question of whether rural areas with high rates of unemployment have higher drug abuse rates should be examined.

A DRUG ABUSE PREVENTION STRATEGY FOR RURAL AMERICAN COMMUNITIES

This section presents an overview of the steps rural communities might take to reduce the prevalence of drug use among their young people. It is based on the best available evidence on factors influencing drug abuse and the programs and policies that might affect those factors. The factors known to contribute to drug abuse are enumerated, and the kinds of interventions that modify or ameliorate them are described. Most evidence comes from nonrural settings. Yet, it is a starting point for the design and testing of interventions and for further research on the factors that lead to drug abuse in rural areas.

Family and school are two major contexts of development. In the following section, the practices, problems, and programs associated with family and school are presented and then discussed in the broader framework of community.

The Need To Evaluate Comprehensive Interventions

The time has come for the development and evaluation of comprehensive community interventions to prevent drug abuse and all other problems of

youth (Hawkins and Catalano 1992). There are at least three reasons for making this statement.

First, drug abuse is intertwined with other problem behaviors. Research has clearly demonstrated that the use of licit and illicit substances during adolescence is correlated with most other problem behaviors, including antisocial behavior, precocious sexual activity and risky sexual behaviors, dangerous driving, poor school performance, and general risk-taking (e.g., Bachman et al. 1981; Barnes 1984; Biglan et al. 1990*a*; Brennan 1979; Dryfoos 1990; Elliott and Morse 1987; Epstein and Tamir 1984, 1985; Hawkins et al. 1986; Jessor 1987*a,b*; Loeber and Dishion 1983; Malcolm and Shephard 1978; Miller and Simon 1974; Wechsler and Thum 1973; Welte and Barnes 1987; Zabin 1984; Zelnik et al. 1981). Moreover, these behaviors are statistically related (Donovan and Jessor 1985; Donovan et al. 1988; Farrell et al. 1992; Metzler et al., in preparation; Osgood et al. 1988), and the relationship holds for both males and females (Donovan and Jessor 1985; Farrell et al. 1992). How likely is it that substance use can be excised from this constellation of problem behaviors?

Second, drug abuse stems from a complex, but well-understood set of social context factors—the same ones that are associated with most other problem behaviors (Hawkins et al. 1992*b*). The most prominent factors involve peer groups, parents, and schools. To prevent drug abuse, it is necessary to address all of these influences.

Third, community interventions are needed to supplement the prevention efforts of schools and to support and influence schools and families. Comprehensive community programs might seem too expensive to justify merely preventing drug abuse. However, if properly designed, such programs could help to prevent the entire range of youth problem behaviors that plague American society—crime, teenage pregnancy, academic failure, smoking, alcohol use, as well as illicit drug use. Thus, promoting community change to prevent these problems is a top priority for the 21st century. Moreover, community interventions may prove to be relatively inexpensive, because they involve mobilizing and refocusing existing elements of the community to attack these problems.

Association With Deviant Peers

The most proximal influence on adolescent substance abuse appears to be association with substance-using peers (Hawkins et al. 1992*b*). This is

perhaps one of the better documented findings in the study of adolescent behavior. Although most studies have focused on the degree to which adolescent substance use is associated with peer substance use, a general measure of peer engagement in diverse problem behaviors predicts engagement in a variety of specific problem behaviors (Ary et al., in preparation; Biglan et al. 1990*a*; Metzler et al. 1994). The mechanisms by which peers influence others to use drugs includes experimentation with substances in social groups (Friedman et al. 1985), social reinforcement of talk favoring these behaviors, and social modeling (Kandel et al. 1986).

Parenting Practices

A number of parenting practices contribute to adolescent drug abuse and other problem behaviors. The two most important appear to be parental monitoring and limit-setting. Monitoring involves parents keeping track of what their children are doing when they are not around. It includes the amount of time the child is left home without supervision and the degree to which parents find out what the child is doing at school and with friends. Richardson and colleagues (1989) found that eighth grade students who were home alone after school had a significantly higher likelihood of substance use even when other variables predictive of substance use were controlled. Other researchers have found that a general measure of parental monitoring was inversely related to association with deviant peers and, through it, the development of substance use and other antisocial behavior (Dishion 1990; Dishion et al., in press; Patterson et al. 1989, 1992). Work by the authors has shown that inept monitoring predicts association with deviant peers, which, in turn, predicts engagement in general problem behavior, a construct that includes licit and illicit substance use (Ary et al., in preparation).

Limit-setting involves parents making clear rules about the things their children can and cannot do and consistently enforcing those rules. Recommended parenting practices include reinforcement for rule following and mild but consistent punishment for rule violations. The most problematic form of limit-setting involves parents who do not make clear rules, do not consistently enforce them, but sometimes use harsh punishment. Typically, these parents have had a pattern of using harsh and inconsistent discipline since their children were quite young. Parents using these discipline practices are more likely to have children who are aggressive, and such aggressiveness contributes to academic failure and peer rejection when

children enter school (Patterson et al. 1989). This, in turn, leads to associations with other rejected young people—the deviant peer group.

Another parenting practice that may be important is positive involvement with children (Patterson et al. 1992). Modeling studies on the influence of parental practices frequently do not include positive involvement because it is highly (and inversely) related to ineffective limit-setting (Patterson et al. 1992). Presumably, parents who get involved with their children in recreational and constructive activities help develop their childrens' skills, learn more about what their children are doing, reduce the pull of deviant peer groups, and increase their ability to reinforce their children's behavior. Parents who use harsh and inconsistent discipline practices probably do not get as involved with their children because interactions tend to be aversive for both parent and child. Efforts to encourage positive involvement with children would be an important goal for communities that want to decrease the incidence of substance use and other problems.

In addition to specific parenting practices, a number of contextual conditions for families appear to influence children's development. These include poverty, parental isolation from adult social support, single parenting (Patterson et al. 1992), and parental substance use (Hawkins and Catalano 1992). Some of these factors affect children because they undermine effective parenting practices (Reid and Patterson 1991). For example, poverty and single parenting appear to decrease the likelihood that parents will have the time or the motivation to monitor their children and to make and enforce clear rules.

Applicability of a Social Context Model to Rural Areas

A legitimate concern is whether these models of the development of adolescent problem behavior can be generalized to rural communities. To test this issue, data obtained over 2 years in six small Oregon communities were used. The principle economic activities in these communities were tourism, logging, fishing, and farming. Initial results are summarized here.

Data were available from 1,077 young people in the six communities. Data were collected when students were in grades 7 and 9 (assessment 1) and 2 years later when they were in grades 9 and 11 (assessment 2). An extensive questionnaire asked about substance use, other problem behavior, association with deviant peers, and family relations. Items were derived

from extensive prior work conducted by Patterson and colleagues at the Oregon Social Learning Center (OSLC) (e.g., Patterson et al. 1992) and by the authors' group (Metzler et al. 1994).

Figure 1 presents the model that was tested. It consists of a measurement model developed on data collected at assessment 2 and a structural model in which the assessment 2 problem behavior construct was predicted from data collected at assessment 1. Confirmatory factor analysis provided support for the measurement model in which the observed relationships among drug use, academic failure, and antisocial behavior were adequately accounted for by the problem behavior construct. The substance use index included items involving alcohol, cigarettes, smokeless tobacco, and illicit drugs. This result is consistent with two other studies conducted with young people in urban settings (Ary et al., in preparation; Metzler et al. 1994). At least in these rural communities, problem behaviors are interrelated.

The full model hypothesized that both coercive family processes and positive family relationships influence inept parental monitoring, and that these parental practices, in turn, influence whether the young person associates with deviant peers. These variables were assessed at the same time, making it impossible to test whether coercive processes and lack of positive family involvement are antecedent to inept monitoring and association with deviant peers. However, Ary and colleagues (in preparation) did find this temporal ordering in a data set that measured coercion and positive family relationships at time 1 and monitoring and deviant peers at time 2. Moreover, a review of evidence on antisocial behavior indicated that coercive family processes preceded the development of association with deviant peers (Patterson et al. 1989).

Further, the model hypothesized that inept parental monitoring and association with deviant peers at assessment 1 predict problem behavior at assessment 2. Family coercion and positive family relationships were significantly negatively related, and inept parental monitoring was more likely when family relationships were poor. Coercive process also predicted inept monitoring, though to a lesser extent. Association with deviant peers was significantly related to inept parental monitoring, coercive processes in the family, and, to a lesser extent, to poor family relationships. Both inept monitoring and association with deviant peers predicted problem behavior 2 years later. The model accounted for 31 percent of the variance in problem behavior. (Having positive family

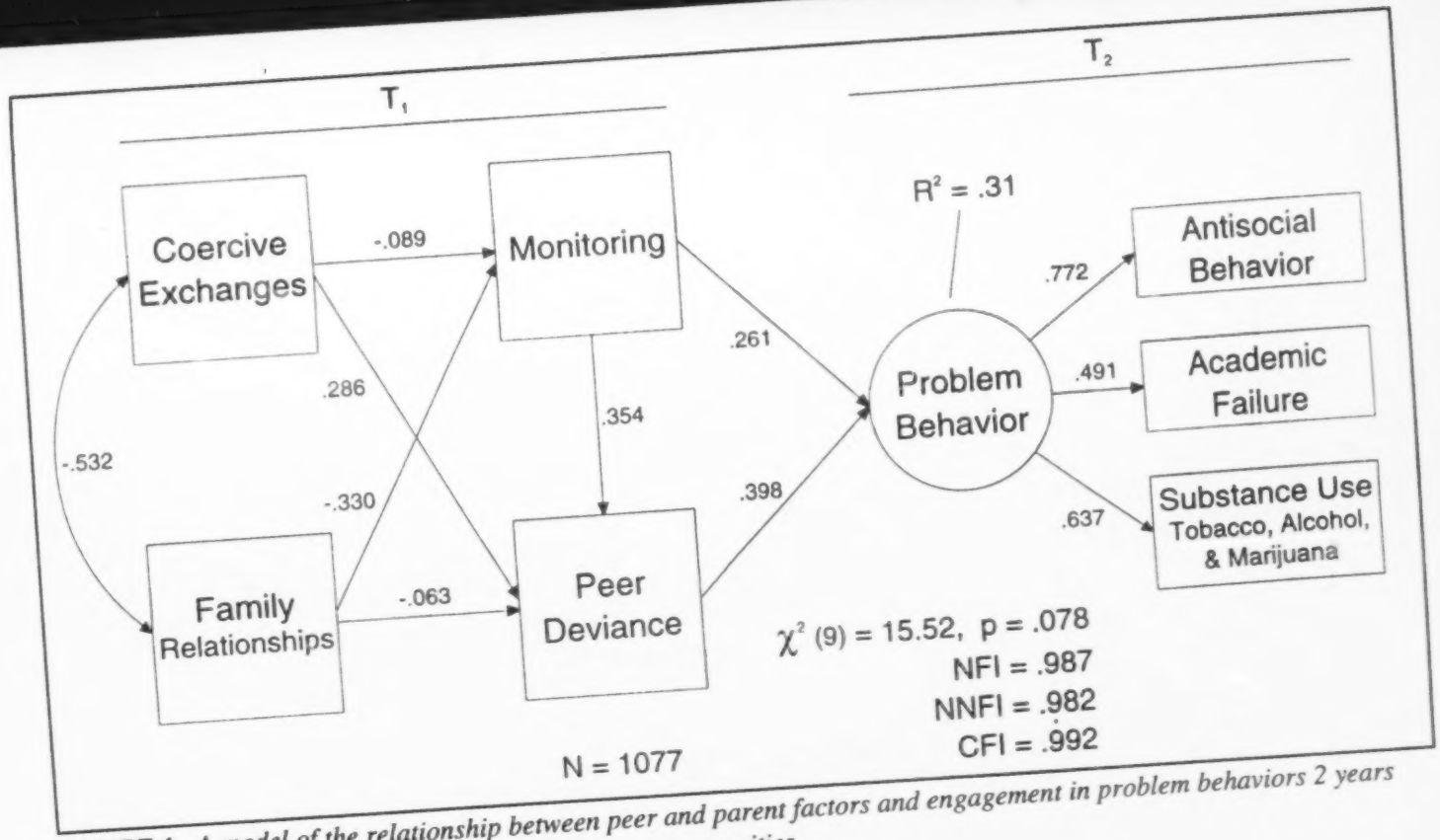

FIGURE 1. *A model of the relationship between peer and parent factors and engagement in problem behaviors 2 years later. Data come from 16 rural Oregon communities.*

relationships at assessment 1 was associated with less academic failure 2 years later for both this and an urban data set (Ary et al., in preparation)).

Values of the various fit indices (NNFI = 0.982; CFI = 0.992, and the chi-square test statistic, $\chi^2 = 15.52(9)$, $p = 0.078$), support the relationships hypothesized in this model of general problem behavior. At least in these six rural communities, young people who engage in one problem behavior are more likely to engage in others. Moreover, families characterized by high levels of conflict and little positive involvement are likely to have poor parental monitoring, and their children are more likely to associate with deviant peers. The associations with deviant peers, coupled with poor parental monitoring, influence the development of problem behavior as much as 2 years later.

Increasing Parenting Skills Through Parent Training

An obvious implication of this evidence is that communities could reduce the prevalence of substance abuse and other problem behaviors by increasing the prevalence of effective parenting practices. There is substantial evidence for thinking that this can be done, though to date research on changing parenting skill has involved only clinical interventions. This research shows that parent skill can be altered and that child behavior will change as a result (McMahon and Wells 1989; Patterson et al. 1992; Webster-Stratton et al. 1988). It has yet to be shown that parent training actually prevents the development of antisocial behavior or drug abuse because studies of the size and duration needed to test these questions have not been conducted.

There are substantial barriers to translating what is known about effective parenting into widespread community effects. Most communities do not have validated parenting-skills training programs available. Many parents in need of such programs will not volunteer for them or remain in them (Hawkins et al. 1991; McMahon et al. 1981). Even the best parenting-skills programs have limited effects when families are in extreme poverty or are socially isolated (McMahon and Wells 1989). Despite the barriers to successfully implementing parenting-skills training, many programs of varying complexity are available. Three examples are discussed here.

The Adolescent Transition Program. In an effort to reach families in need of parenting-skills training, an intensive, behaviorally oriented intervention was offered to parents of middle school children identified

by the school district as having behavioral, social, or academic problems. The Adolescent Transitions Program (ATP) parenting curriculum is based on models developed at OSLC during two decades of research (Patterson et al. 1992). Evaluation evidence indicates that the program has a significant impact on parenting practices and young people's behavior (Dishion and Andrews 1995). Its replicability is being tested in a randomized intervention/wait-list control trial in eight small Oregon communities (populations 1,800 to 10,000) with the help of the OSLC program developers.

The 12-session course was designed to help parents learn and practice parenting skills. General topic areas included monitoring, developing incentive contracts, establishing rules and setting limits, delivering effective consequences, and parent-child negotiations. Each session also spent time on an aspect of parent-child communication (e.g., neutral requests, praising, and active listening). Coleaders were hired from the community and trained at Oregon Research Institute (ORI). The leaders traveled to ORI every 2 weeks to meet as a group to discuss class issues common across communities (e.g., how to keep more fathers involved in ATP and in positive parenting issues; how to encourage parent follow-through at home) and to prepare for upcoming sessions. Leaders also called the parents each week between class sessions to answer home practice questions and offer support. Home visits by the group leaders were scheduled as needed, and most families were visited one to three times during the 12 weeks of classes. In addition to the benefits associated with development of new parenting skills and the support from other class members, parents were offered material incentives for their participation. These included monetary rewards based on attendance, free child care, food at the meetings, and drawings each week at class for family activity games.

Preliminary analysis of ATP outcomes were positive in comparisons of relatively small samples of intervention (N = 60) and wait-list (N = 62) families. Scores on all three subscales of the Parenting Scale (Arnold et al. 1993), "verbosity," "over-reactivity," and "laxness," improved significantly for the intervention group compared to the wait-list group. These findings suggest that ATP parents were more controlled and consistent after attending the classes. Measures of problemsolving behaviors and satisfaction also showed that intervention group parents significantly improved compared to the wait-list parents. A similar measure of parent-reported child behavior and satisfaction showed no change. A series of phone interviews with parents conducted at pretest and posttest showed

some, but not significant, improvement for the intervention group on subscales rating child antisocial behavior, child adjustment, and child substance use. Results from the ATP classes are encouraging because they suggest that a clinically developed and tested model of parenting-skills development can, with appropriate support, be replicated by nonclinicians.

Preparing for the Drug Free Years. Another approach to offering parenting skills is specifically designed to assist parents in taking the steps needed to prevent drug abuse. Developed by Hawkins and colleagues (1991), Preparing for the Drug Free Years (PDFY) consists of five weekly sessions that provide parents with information and strategies to help them reduce the chances that their children will be drug users as they grow up. The Oregon Office of Alcohol and Drug Abuse Programs initiated an ambitious program to train volunteers from throughout the state to be PDFY group leaders. The program was launched with a statewide advertising campaign and several hundred workshops. However, evaluation of the program's efficacy was hampered by a lack of data returned to State offices by the group leaders.

After an auspicious start, anecdotal reports indicated two general problems: recruiting parents to attend the free workshops was difficult, and many of the trained instructors were not actively leading PDFY groups. To counteract the poor attendance, the authors attempted to muster local resources to support the classes in two communities. Flyers were sent home with school children, child care was provided, incentives were offered to those attending, civic groups helped promote the classes, and the local media were used to advertise. Despite these efforts, local parental support for the program did not materialize; a total of three families attended the workshop in the two communities. Clearly, more must be learned about what motivates parents to invest their energies in acquiring new skills that will benefit their children.

The authors' experience also showed a need to know more about the motivation of group leaders to offer parenting skills classes. To address this question, a mail survey was conducted of the 723 PDFY group leaders trained from 1989 through 1992 (Irvine et al., in press). A total of 52.6 percent of the surveys were completed and returned. Results indicated that 69.7 percent had not led a group in the last year, including 15 percent who had never led a group. The perceived benefits of leading PDFY groups focused on the social value of the program ("PDFY will make a difference," "PDFY helps individual families," "PDFY benefits

the kids"), while the barriers to leading groups involved reaching the most needy parents, recruiting class members, and having enough time to devote to the classes.

Stepwise regression analysis accounted for 28 percent of the variance in rated intentions to teach the program in the future. Significant predictors were competing interests, general burnout, increased fatigue from PDFY, more work ("already too busy"), and loss of free time. A similar analysis of benefit items explained 7 percent of the variance and identified two important items: "I have fun" and "addresses society's drug problems."

Barriers that significantly predicted actual teaching of the workshops accounted for only 2.8 percent of the variance. These barriers were no or inadequate financial reimbursement and anxiety from teaching PDFY. Another stepwise regression linked benefits with number of workshops led and explained 9.7 percent of the variance. The benefits that predicted teaching included "developing rapport with the families," "quelling criticism," "like to work with co-leader," and "helps people of color."

If communities are to foster parenting skills and make resources available to those who require the skills, strategies are needed to make the programs more attractive to both parent participants and group leaders. Anecdotally, it seems that increasing the personal contact that class leaders have with parents before the program starts, providing food at sessions, and having experienced class leaders will increase parental participation. Once class leaders have taught the course, they can be much more convincing in explaining its value to parents. This, of course, points to the need to retain experienced leaders.

This study suggests that volunteers are discouraged from teaching the program because of competing interests, the logistics of organizing the classes, and the anxiety generated by teaching them. Strategies that increase the fit between the needs of a volunteer and the job to be performed will increase the longevity of that individual with the program (Francis 1983). Research indicates that some individuals volunteer for jobs to gain new skills and that they remain in those positions because of intrinsic rewards associated with the work (Lammers 1991). Other volunteers become involved for altruistic reasons, but they also may value recognition or being part of a group (Wilson 1976). Assuming that volunteers work for a "motivational paycheck," communities should pay attention to how to provide the needed incentives, whether they be in the form of intrinsic or extrinsic rewards (Lauffer 1982; McClam 1985).

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Media To Affect Parenting Practices. Faced with the cost of providing parenting-skills training to small groups of parents and the barriers to reaching parents through face-to-face training, the authors' group has been exploring some brief, lower cost interventions to try to reach a relatively larger proportion of parents and affect their parenting activities.

After several attempts using alternative methods, it was concluded that schools are the most effective way of reaching a large proportion of parents. The first school-based effort was an activity designed to get parents and children talking about tobacco use. A parent group in one community suggested sending middle school students home with a quiz about tobacco. The offer of rewards to classes that got a high percentage of participation resulted in the majority of parents in each classroom talking with their children about the hazards of tobacco use. An experimental evaluation of this and related parent and child targeted activities was conducted across six communities (Biglan et al., in press). Eighty percent of the parents were reached. Parents reported significantly more conversations with their children about tobacco use due to the campaign. Young people were prompted by the campaign to rate spitting tobacco as significantly less safe than they had, to know significantly more about tobacco company promotions to encourage smoking, and to have significantly lower ratings on intentions to smoke.

Encouraged by this, the authors are piloting a set of school-based parent-child activities designed to get parents to establish clear rules and consequences for behaviors that might lead to substance use or other problems. After being piloted in three classrooms, the program has been revised to consist of four activities: (1) a pretest designed to assess parenting practices and to obtain community-based normative data about parenting practices; (2) a letter to parents summarizing the local parenting norms with regard to monitoring and limit-setting; (3) a monitoring activity in which parents are quizzed about what they know about their children; and (4) a rule-making activity designed to help parents establish rules (and effective consequences) regarding their children's associations with peers.

Schools

Schools can influence drug abuse in three ways. They can provide prevention programs that are specifically designed to prevent substance use. They can prevent academic failure, which tends to be related to substance abuse. They can identify students whose social behavior puts

them at risk of developing substance abuse and remediate those difficulties.

School-Based Prevention Programs. There is controversy regarding the effectiveness of school-based programs to prevent drug abuse. Two meta-analyses that have been conducted on studies of the school-based drug abuse prevention programs did not agree in their conclusions. Tobler (1986) analyzed 143 studies for the effects of substance abuse prevention programs. Alcohol, illicit drug use, and tobacco use were all found to be significantly deterred by programs that focused on peer influences. These programs sensitized young people to peer influences and taught them skills for coping with social pressures to use substances. They often used peer leaders to conduct components of the program. Tobler also concluded that programs that provided for positive alternative activities have a significant effect in deterring drug abuse among young people who are at high risk for substance abuse.

Bangert-Drowns (1988) focused on a smaller number of studies after eliminating those that dealt exclusively with tobacco use and those that were deemed methodologically flawed. The conclusion was that, although prevention programs affect knowledge and attitudes toward substance use, they do not affect substance-using behavior.

A third, more recent review of the literature classified studies in terms of 12 content areas (e.g., information, decisionmaking, and resistance skills) and defined clusters of studies based on their content (Hansen 1992). This was not a meta-analysis, but rather a qualitative review. It concluded that social influence programs (sensitizing young people to influences to use substances, teaching skills for resisting those influences) and comprehensive programs (combining social influence with elements such as information and decisionmaking training) have a significant deterrent effect on substance use.

The evidence for the efficacy of prevention programs focusing on peer influences is thus uncertain. It appears appropriate for communities to develop substance abuse prevention programs as a strategy, but depending on school-based substance abuse prevention programs alone may be a mistake.

The Need To Enhance Academic Success. Academic failure is a predictor of the onset and continued use of licit and illicit substances (Hawkins et al. 1992*b*). Young people who fail in school tend to become

friends with others who fail. This enhances the formation of peer groups that reject school and begin to experiment with other reinforcing activities. Ensuring that young people have the skills to succeed in school ensures that they have reinforcing alternatives to substance use and other problem behaviors.

Communities that want to prevent substance use and other youth problems should carefully examine the instructional practices of their schools. Much has been written about educational reform, but the importance of effective instructional practices has largely been overlooked. Discussion of educational reform tends to focus on such major issues as the length of the school day and year and the restructuring of schools. However, precisely what happens when teachers teach and children learn is often ignored.

The effective features of instruction have been well identified by research, but they have not been publicized in most communities. Becker (1986) provided a summary of the key features of instructional approaches that result in successful education:

1. Objectives are specified.

2. Preskills are tested to ensure appropriate placement.

3. Procedures are developed to motivate and engage the student in active learning.

4. Instruction is designed to teach the targeted objectives effectively and efficiently.

5. Differential time is allowed for individual students to reach mastery.

6. Ungraded, frequent testing is provided to monitor progress.

7. Corrective-remedial procedures are provided if an approach fails.

8. Adequate practice for mastery of subskills is provided.

9. There is testing for longer term mastery of objectives.

Approaches to instruction with these features are referred to as mastery learning models (Becker 1986). The two most extensively tested models of this type have been Bloom's Mastery Learning (Bloom 1976) and Engelmann, Becker, and Carnine's Direct Instruction (DI) (Becker 1986). When used in high-risk educational settings, both have repeatedly produced significantly higher levels of learning than the traditional instruction techniques to which they have been compared (Becker 1986).

The most extensive test of DI compared its effects with those of eight other instructional approaches to elementary education. Using a very large sample of students leaving Head Start and beginning first grade, the study was the largest educational evaluation ever conducted. The DI materials consisted of 43 programs for teaching arithmetic, reading, spelling, cursive writing, expressive writing, facts, and using library books in grades one through three. DI achieved significantly better results than did any of the other approaches. It was the only model to raise students from under the 20th percentile to the 50th percentile in math, spelling, and language. On their total reading score (comprehension and vocabulary), students went from the 20th percentile to the 41st. On decoding skills they went to the 82nd percentile from the 20th. Followup studies indicated that although there was deterioration in students' performance in subsequent grades when DI procedures were no longer in use, much of the gain was maintained. A followup when these children were 18 years old indicated that there were fewer retentions and dropouts and more graduations than was true for comparison group students (Becker 1986).

Community members who want to ensure that all of a community's children are properly educated will do well to ensure that well-supported learning models such as mastery learning or cooperative learning models are used in their schools. The abject failure of schools to adopt proven educational techniques points to the need for more research on how to influence the adoption of effective instruction.

Identifying and Preventing Social and Behavioral Problems. Assessment procedures are available that permit the identification of students most at risk for social and behavioral problems, including drug abuse. Rating and observation measures of children's peer- and teacher-directed social behavior are available. The review by Bullis and Walker (1993) describes those most successful in identifying children likely to develop difficulties. Schools that adopted these assessment procedures can identify and then help these children.

Interventions to address social and behavioral problems are similarly well defined (Bullis and Walker 1993). A good example is the RECESS program. It was developed to remediate aggressive and antisocial behavior patterns among children in kindergarten through third grade. It significantly reduced aggressive behavior in children (Bullis and Walker 1993; Walker et al. 1981, 1984). In this program, the target child and his or her peers are tutored in positive, rather than negative, forms of aggressive social behavior (e.g., Bierman 1986; Bierman and Furman 1984). Direct instruction regarding playground rules ensures that the rules are understood (e.g., Madsen et al. 1968). Group contingencies delivered to both the target child and peers support positive peer involvement (Bierman and Furman 1984). A response-cost-point system provides a mild, effective conse-quence for aggressive behavior or rule violations (Becker 1986).

Cooperative Learning. Because academic failure and association with deviant peers are both risk factors for substance abuse and other problems, interventions could be valuable that promote academic success, while reducing the tendency of high-risk children to congregate with each other. Cooperative learning programs in which students learn in heterogenous groups do this and with promising results. Johnson and Johnson's (1983) review of this research indicates that participation in cooperative learning increases the academic performance of low-performing children, while not reducing the performance of children whose performance is better. At the same time, it increases the social acceptance of higher risk children by other children, which is a key to preventing the socially rejected children from forming a peer group that promotes deviant behavior.

Hawkins and colleagues (Hawkins et al. 1988; Hawkins and Lam 1987) have shown that knowledge about effective instruction and classroom management can be translated into improved outcomes for middle school students. They evaluated the effects of training middle school teachers in the use of effective classroom management techniques, cooperative learning, and mastery-oriented instruction. Young people in these classrooms showed improvements in a variety of areas predictive of later substance use, including attachment to school, lowered rates of aggression among boys, and lowered suspension and expulsion rates.

In sum, strategies are available for communities and schools to use in identifying and intervening with children at risk for behavior problems, social rejection, and academic failure. What is needed is community awareness of and commitment to these strategies and their goals.

What Communities Can Do To Prevent Adolescent Substance Abuse

The material just presented is based on a good deal of research about the factors contributing to youth problems and the interventions that could prevent them. There is far less research on what other sectors of the community could do to reduce risk factors for substance abuse and other problem behaviors. In part, this is due to what Wallack and associates (1993) call the individualistic bias in public discussions of social problems. In this society, it is far more likely that problems will be examined in terms of the behavior of individuals than in terms of how organizational policies and actions contribute to them or could contribute to their solution.

Despite this, there is some empirical basis for studying what sectors of the community, other than parents and schools, could do to reduce the risks of drug abuse and other problems. This section draws attention to key problems and example solutions and discusses how communities might be helped to organize themselves.

In Locus Parentis. There is a parental labor shortage in many American homes. The proportion of single-parent families has doubled since 1960, and 60 percent of today's children will live with a single parent at some point in their childhood (Marshall 1991). At the same time, the proportion of families that have both parents working has increased as the percentage of women in the workforce has gone from 19 percent in 1900 to 57.4 percent in 1989 (Marshall 1991).

Individual families must find ways of providing supervision for children in the absence of parents. It is now clear that communities need to supplement the functions of parents in this arena. Constraints on the availability and cost of child care have resulted in the most at-risk children and adolescents being unsupervised and unchallenged during much of their free time. Community programs can see to it that prosocial behavior is nurtured and problem behavior is limited.

One way that communities can help is by creating environments where young people can become involved in activities that encourage the development of skills and social relations that are incompatible with the development of problem behaviors. Program participation would also increase the amount of time young people's activities are monitored and set limits on their experimentation with dangerous or unwise behaviors.

Strategies designed to attract young people at risk for substance abuse and other problem activities need to be identified.

Jones and Offord (1989) evaluated one such program in Ottawa public housing. Two full-time staff members offered sports and other activities for children between the ages 5 and 15. Participation brought about a significant reduction in antisocial behavior in the housing complex when compared with a similar housing complex that did not have such a program.

Communities can also set more distal limits on the behavior of young people in an effort to reduce the risk of substance abuse and other problems. Obvious examples include laws regulating minors' access to alcohol and tobacco and concerted efforts to deal with truancy. Young people not in school often can be out and about the community with no fear of raising questions about their nonattendance in school. There is increased public discussion of curfews, which many communities have but few enforce. Some object that curfews encroach on the civil liberties of young people. Research that clarifies values in reducing the incidence of problem behavior in communities is needed to see whether the cost of limiting young people's freedom is outweighed by its benefits.

Family Support. Correlational evidence suggests that social support for parents can improve their functioning as parents. Three types of social support appear beneficial to adult functioning: (1) esteem or emotional support, (2) instrumental or material support, and (3) informational support (Cohen and Wills 1985). Organized programs to provide such support have been systematically evaluated for families of infants and young children, but not for families of older children. Such programs appear to improve child and parent functioning at the same time that they increase social support for parents (Andresen and Telleen 1992; Dokecki et al. 1983; Heinicke 1990; Heinicke et al. 1988; Johnson 1989; Kagey et al. 1981; McGuire and Gottlieb 1989; Pierson 1988; Polirstok 1987; Ramey et al. 1988).

Effective programs have typically combined parent education with one or more of the following elements of family support: home visits or other outreach efforts to establish a warm working relationship with the interventionist, parent support groups, links to health and social services in the community, and efforts to address a variety of practical and social needs. Further evaluation of these programs in preventing the development of youthful substance abuse and its precursors would be valuable.

Even if such programs are shown to be of value, the question of how communities can be induced to adopt and maintain them will remain. The answer lies in communities' developing practices that acknowledge and prize contented families and well-adjusted children. Various sectors of the community could contribute to the development of effective parenting skills. The key skills and examples of training programs were described above. Civic, religious, health care, and social service organizations could pool their resources and offer such training. Even if community organizations did not offer parent training themselves, they could fund others to do so and help to promote the programs. Similarly, community organizations could help promote effective parenting practices through the media. Finally, as companies come to see the value of strong families, the workplace will increasingly become a vehicle for promoting effective parenting.

The Problem of School Reform. School reform deserves special attention. As noted above, much is known about instructional and other practices that school systems should be using; less is known about how to influence them to adopt and maintain these practices. Efforts to implement validated teaching strategies are often unsuccessful (Fullan 1982; Gersten and Woodward 1992; Guskey 1990; McLaughlin 1990). Teacher-change models have had limited success because they lack specificity, concreteness, and intensity (Fuchs and Fuchs 1986) or because they require teachers to substitute new practices for old rather than allowing them to assimilate new ideas into current teaching styles (Gersten and Woodward 1992). The evidence suggests that teachers' adoption of effective practices would be fostered by a program of staff change that incorporates specific techniques (Carnine and Gersten 1985; Fullan 1982), enhances teachers' current teaching styles rather than dramatically altering them (Gersten and Woodward 1992; Smylie 1988), and offers support in the form of onsite technical assistance (Gersten et al. 1987).

Progress on this problem requires an analysis of the influences on school practices. One approach involves analyzing the consequences that select the behavior of individuals and the practices of organizations. The approach draws on behavior analytic principles of the role of reinforcement in individual behavior (e.g., Biglan 1995; Skinner 1953) and cultural materialist analyses of the selection of cultural practices (e.g., Biglan 1988, 1992, 1993, 1995; Biglan et al. 1990*b*; Harris 1979).

As currently constituted, most school districts are insulated from outside influence by a set of bureaucratic rules and contracts that shield school

personnel from demands and criticism of parents and others in the community. Chubb and Moe (1990) described how such a bureaucracy evolved as successive waves of school reformers tried to ensure that their innovations outlasted their political control of the school system. In theory, school boards have the power to influence the practices of schools; in reality, decisions are in the hands of administrators and teachers through both written rules and institutional tradition.

The problem for school reform is twofold. First, there must be clear statements, based on empirical evidence, of what practices are needed and why they will be of value. Failure to do this creates the risk of changing school practices without improving them. This evidence has been suggested above. More comprehensive discussions are provided by Becker (1986) and by Wahlberg (1984, 1992).

Second, the consequences for effective school practice must be altered. This could be done using integrated strategies. One strategy could concentrate on sharpening the contingencies between outcomes and consequences to teachers, administrators, and elected officials; this would involve ensuring that student performance was measured appropriately and thoroughly and increasing the reinforcement for positive student outcomes. Some pay could be made contingent on increases in children's knowledge over time. Outcomes for districts, schools, grade levels, and individual classrooms could be published widely so that social reinforcement (or disapproval) could be mobilized for these outcomes. School districts, State agencies, and community groups could explicitly mobilize social recognition, cash prizes, and other rewards for those who contribute to the best outcomes.

Sharpening contingencies for the adoption of effective instructional and social behavior interventions is also needed. Widespread understanding of the basic principles of effective instruction must be generated. Parents, school board members, and civic leaders must be informed that all children can learn, and they will prosper most when instruction is based on well-documented, but oft-ignored principles. The evaluation of teachers and administrators should consider whether they adopt these practices.

Sharpening contingencies for outcome or practice would be facilitated by school reorganizations that allow parents to choose among schools. Chubb and Moe (1990) describe how school performance improved in the East Harlem school district when teachers were allowed to form any type of program they wanted, so long as they could get parents to send

their children to it. Many have argued that such choice systems will lead to many parents choosing education that is not good for their children. To some extent this is an elitist argument, since the wealthy have been choosing private schools for their children for many years. The risk that ineffective programs will garner support must be empirically evaluated. It may be that allowing parent choice will work best if information about best practice in education is widely available.

Even if these proposals would lead to better educational outcomes, the question remains of how to move communities toward them. This is a matter for media and community organizing, issues considered below.

Community Organizing for Improved Childrearing

Empirical work is needed on how communities might be helped to improve childrearing outcomes. This is not a problem for which extensive evidence is available. Much can be said about the risks and protective factors for substance abuse and other problems. A good deal is known about interventions to modify these factors, but there is much less information about how communities can be assisted or induced to address these factors in a concerted way.

The problem of bringing about change in communities or States is more likely to be seen as a political problem than one appropriate for scientific research. A paradigm for research of this sort is needed, one that makes clear how to study interventions to affect cultural practices of communities and States. This issue is discussed in more detail in a forthcoming book (Biglan 1995), but some principles that might lead to a better understanding of how to bring about useful community change are mentioned below.

First, it would seem important to base efforts at community change on the best available evidence about risk and protective factors and interventions to affect these factors. This might seem to go without saying, but there are many examples of community change efforts that are not so informed (Biglan et al., in press).

Second, ongoing measurement of key risk and protective factors and outcomes for children is essential. Such measures are indicators of the effectiveness of a community's childrearing efforts. Regular publication and review of these indicators can help to prompt community leaders and

organizations to take the steps needed to improve outcomes. Moreover, indicators can guide communities in the selection of programs and policies.

Third, systematic research on factors influencing community organization practices is needed. If communities are going to implement programs and policies that would prevent adolescent problem behavior, it will only be because diverse organizations become involved in childrearing issues and take effective action. Little is known about why civic, business, social service, or government agencies do or do not adopt specific programs and policies. A science of the influences on organization practices is needed, and that could shape community efforts to foster better childrearing practices.

A number of additional theoretical principles might guide community interventions. First, it would appear important to articulate the case for changed childrearing practices in terms that link specific innovations (such as family support programs) to outcomes important to influential members of the community (Biglan 1995). It is doubtful that most community leaders realize the costs of childrearing failures or the long-term benefits that would accrue to communities that adopt the best practices. Keeping these facts before the public is critical in generating the ongoing support needed to effect significant change.

Second, it is important to ensure that proposed innovations improve the cost/benefit ratio for influential individuals and key organizations. This principle rests on substantial evidence regarding the importance of costs and benefits for maintaining the behavior of individuals and the actions of organizations (Biglan 1995). Introducing innovations in community practice that benefit influential individuals and key organizations is one way of doing this. For example, one should have little trouble getting nonprofit groups to provide family support if their doing so involves an increase in their funding. Unfortunately, funds for such efforts are hard to come by in communities where the costs of current problems are only dimly understood and the possibilities for improved outcomes are not known.

However, there are many ways in which nonfinancial resources can be marshaled for community change. Public agencies that adopt useful programs can be assisted in making their contributions known to their constituencies. Public recognition and awards can be used to provide social reinforcement for the efforts of individuals. Such methods of

marshaling social reinforcement for community change efforts need to be empirically evaluated. Finally, using media to generate public support for efforts to improve childrearing may increase the likelihood that any given effort achieves public support.

The Potential of Media

Surprisingly, the value of media for preventing drug abuse has not been investigated extensively, and their value in promoting changes in child-rearing practices has received even less attention. Evidence of the efficacy of media in promoting beneficial behavior comes from studies of health behavior (Farquhar 1991; Flay 1987*a,b*; Flynn et al. 1992), crime prevention (O'Keefe and Reid 1990), alcohol consumption (Barber et al. 1989), and drunk driving (Niensted 1990). There is also ample evidence that media influence behavior in nonbeneficial ways (e.g., Rosenthal 1990; Surette 1990). Thus, there are compelling reasons to explore the potential of media for reducing drug abuse and other problems in rural communities.

Media could serve at least four functions in efforts to reduce drug abuse and related problems. First, the media could help set an agenda for addressing the risks and protective factors relevant to these problems. Ongoing media advocacy about the costs of current childrearing outcomes and the benefits of change could help to create a normative climate supportive of an agenda for change. Wallack and colleagues (1993) argue that such advocacy should target the organizational policies and practices that need to be changed, rather than implying that individuals should be expected to change while the environment remains the same. Such advocacy would make extensive use of data on the problems and risk and protective factors in the local community and would draw on the evidence about the costs and benefits of affecting risk factors and reducing the incidence and prevalence of problem behavior.

Second, there might be advocacy for specific policies and programs. It is unlikely that useful changes will occur in specific school, government, social service agencies, and health care provider practices simply because the general need for improved childrearing is understood. Whether media advocacy can prompt organizations such as schools to adopt effective programs is less clear, but well worth evaluating. Media could be targeted directly at those in positions to decide on policy and program adoption and on those who might influence decision makers. For example, getting schools to adopt effective instruction may require advocacy with both school personnel and parents.

Third, media could directly affect the practices of parents and teachers. Given evidence that parents can learn to use key parenting skills from video tapes (e.g., Webster-Stratton 1982), there should be a systematic examination of whether their skills could be affected through mass media. Research could evaluate the effects of campaigns to increase specific parental behaviors such as setting effective limits and monitoring children's behavior. Similarly, research might examine whether teachers' choices of instructional techniques can be influenced by media advocating instructional practices that are well validated.

Fourth, media could directly influence children's behavior. For example, Flynn and colleagues (1992) showed that a media campaign to discourage children's use of cigarettes had a significant effect. Campaigns to influence other forms of drug use have apparently not been evaluated despite indirect evidence that mass media can have an impact (Black 1991).

The Challenge and Opportunity of Research in Rural Communities

There are distinct challenges to developing effective programs in rural communities. These include the out-migration of families, the lack of services for families, the distances that often must be traveled by family members and interventionists alike, and the low population density of many communities. Given the size of most rural communities, political and human service leaders may hesitate to commit the resources needed to affect these communities.

Yet, there are distinct advantages to developing and evaluating community interventions on childrearing in rural communities. As elaborated elsewhere (Biglan et al., in press), conducting research in small communities makes possible randomized control trials of community interventions that would be impossible to conduct in larger communities. The relatively small sizes of these communities makes it possible to work with the entire community leadership and with local media. Further, small size may actually encourage measurement of the prevalence of youth problem behaviors because entire school populations can be assessed. Moreover, it is feasible to reach all families at risk in a given community.

Whether community interventions that are developed in rural communities will be generalizable to larger areas is, of course, a matter for empirical investigation. But, at least with respect to research on community interventions, it is appropriate to reverse the traditions of the past 50 years in which

innovations have flowed primarily from urban to rural areas. In fact, what is learned in the tractable situations of rural communities could contribute greatly to the solution of the pressing problems of urban areas.

CONCLUSION

Enough is known about the factors that contribute to the success of children to begin to focus on how the numbers of successful children can be increased. Parent, peer, and school influences on child and adolescent functioning have been delineated and interventions to optimize parent, peer, and school influences show great promise. As interventions are developed for rural America, there is a choice: Focusing energies solely on developing effective ways of treating the problems of human behavior through traditional means, or embracing the more ambitious goal of reducing the incidence and prevalence of human problems. Research on community interventions to affect problem behaviors is the next logical step. Such research should investigate how previously validated interventions focused on parenting skills, family support, peer influences, and academic and social behavior in schools can be implemented in entire communities, and how the social systems of communities can be organized to enhance community support for those programs that contribute to children's success.

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AUTHORS

Anthony Biglan, Ph.D.
Research Scientist

Terry Duncan, Ph.D.
Research Scientist

A. Blair Irvine, Ph.D.
Adjunct Research Scientist

Dennis Ary, Ph.D.
Research Scientist

Keith Smolkowski, M.S.
Research Analyst

Lisa James, B.A.
Assessment Coordinator

Oregon Research Institute
1715 Franklin Boulevard
Eugene, OR 97403-1983